



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,082	07/07/2003	Sadao Fujii	116472	6984
25944	7590	01/11/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320				KAO, CHIH CHENG G
		ART UNIT		PAPER NUMBER
				2882

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,082	FUJII ET AL.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 July 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/14/03.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig. 1, #41. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 16 is objected to because of the following informality, which appears to be a minor draft error creating grammatical problems.

In the following format (location of objection; suggestion for correction), the following suggestion may obviate the objection: (claim 16, line 2, “wherein X-ray generator”; inserting - - the- - after “wherein”).

For purposes of examination, the claim has been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. (US Patent 5095243) in view of Hirose (US Patent 5045696) and Aoki et al. (JP 01-134300).

4. Regarding claim 1, Kinoshita et al. discloses an apparatus comprising an x-ray generator (Fig. 1, “x-rays”, and Fig. 3, #11), a photocathode (Fig. 2) disposed on a path of x-rays generated by the x-ray generator, the photocathode being configured to produce electrons when irradiated with x-rays generated by the x-ray generator (Abstract, lines 1-2) so that an electron image of a specimen (col. 1, lines 19-20 and 32-37) is formed, an electron image enlarging device configured to enlarge the electron image of the specimen (Fig. 1, #1 and 6), the electron image enlarging device including an acceleration electrode (Fig. 1, #5) configured to accelerate electrons produced by the photocathode and a magnetic lens (Fig. 1, #6) configured to enlarge and focus (col. 3, lines 31-32) an electron beam of electrons emitted by the photocathode; an electron beam detecting device (Fig. 1, #3) configured to detect an electron beam focused

thereon by the electron image enlarging device, and an image processing device configured to process an electron image formed by the electron beam detecting device so as to provide a visible image (Fig. 3, #20).

However, Kinoshita et al. does not disclose a specimen held on a photocathode and an anode.

Hirose teaches a specimen held on a photocathode (Fig. 2, #2 and #3b). Aoki et al. teaches an anode (Abstract, Constitution).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. with the specimen on a photocathode of Hirose, since one would be motivated to make such a modification to make the apparatus more compact (Fig. 2) as implied from Hirose.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. with the anode of Aoki et al., since one would be motivated to make such a modification to more easily direct electrons (Fig. 1) as implied from Aoki et al.

5. Regarding claim 2, Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose synchrotron radiation.

Hirose further teaches synchrotron radiation (col. 3, lines 1-3).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further incorporate the apparatus of Kinoshita et al. as modified above

with the synchrotron radiation of Hirose, since one would be motivated to make such a modification to obtain a better image of a specimen in close proximity to a photocathode (col. 1, lines 5-12) as shown by Hirose, thus keeping the apparatus compact.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. in view of Hirose and Aoki et al. as applied to claim 1 above, and further in view of Tamura et al. (US Patent 5199057).

Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose an electron beam excited x-ray generator.

Tamura et al. teaches an electron beam excited x-ray generator (col. 1, lines 41-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with the electron beam excited x-ray generator of Tamura et al., since one would be motivated to make such a modification to better image a small object (col. 1, lines 41-53) as implied from Tamura et al.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. in view of Hirose and Aoki et al. as applied to claim 1 above, and further in view of Christiansen et al. (WO 2001/03256).

Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose an electric discharge excited x-ray generator.

Christiansen et al. teaches an electric discharge excited (page 2, paragraph 1) x-ray generator (page 24, paragraph 3).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with the electric discharge excited x-ray generator of Christiansen et al., since one would be motivated to make such a modification to better examine very fine structures (page 24, paragraph 3) as shown by Christiansen et al.

See US Patent 6795462 for a translation of Christiansen et al. in the respective areas: (col. 1, lines 17-29) and (col. 13, lines 2-11).

8. Claims 5-9, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. in view of Hirose and Aoki et al. as applied to claim 1 above, and further in view of Nagai et al. (US Patent 5533083).

9. Regarding claim 5, Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose a laser-plasma x-ray generator including a laser and a target to generate x-rays.

Nagai et al. teaches a laser-plasma x-ray generator including a laser and a target to generate x-rays (col. 1, lines 56-60).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with the

laser-plasma x-ray generator of Nagai et al., since one would be motivated to make such a modification to make an apparatus more compact (col. 2, lines 15-17) as shown by Nagai et al.

10. Regarding claim 6, Kinoshita et al. further discloses x-rays generated by the x-ray generator applied directly to the photocathode (Fig. 1, "x-rays" to #2).

11. Regarding claim 7, Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose a condensing device capable of condensing x-rays generated by an x-ray generator so that condensed x-rays are applied.

Nagai et al. teaches a condensing device capable of condensing x-rays generated by an x-ray generator so that condensed x-rays are applied (Fig. 25, condensing device between #818 and 801).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further incorporate the apparatus of Kinoshita et al. as modified above with the condensing device of Nagai et al., since one would be motivated to make such a modification to intensify the strength of radiation (Fig. 25) as implied from Nagai et al. for a better image.

12. Regarding claims 8 and 9, Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose a thin film capable of transmitting x-rays that covers a target with a material that transmits in a range of 2.3 to 4.4 nm.

Nagai et al. teaches a thin film capable of transmitting x-rays that covers a target (Fig. 24, #707), which would necessarily have a material that transmits in a range of 2.3 to 4.4 nm, since this is characteristic of silicon nitride (col. 12, lines 5-7).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with the thin film cover of Nagai et al., since one would be motivated to make such a modification to provide protection from air and reduce x-ray loss (col. 2, lines 19-20) as implied from Nagai et al.

13. Regarding claims 14 and 15, Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose an electron image enlarging device being set such that an axis of an electron beam is vertical with the x-ray generator disposed above the enlarging device.

Hirose further teaches an electron image enlarging device being set such that an axis of an electron beam is vertical (Fig. 1, section between #1 and 15) with the x-ray generator (Fig. 1, #1) disposed above the enlarging device.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further incorporate the apparatus of Kinoshita et al. as modified above with the vertical arrangement of Hirose, since rearranging parts of an invention involves only

routine skill in the art. One would be motivated to make such a modification to make it easier for more electrons to move towards the detector (Fig. 1) and keep the device compact as implied from Hirose.

14. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. in view of Hirose, Aoki et al., and Nagai et al. as applied to claim 5 above, and further in view of Tomie (US Patent 5569916).

15. Regarding claims 10 and 12, Kinoshita et al. as modified above suggests an apparatus as recited above. Kinoshita et al. further discloses an electron beam and x-ray beam having the same axis.

However, Kinoshita et al. does not disclose a laser beam axis parallel to an electron beam axis, wherein both axes are in a common vertical plane.

Tomie further teaches a laser beam axis (Fig. 2, axis of laser beam from #11) parallel to an x-ray beam axis (Fig. 2, axis of #17), wherein both axes are in a common vertical plane.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with the laser beam axis of Tomie to have a laser and electron beam axis parallel and in a common vertical plane, which is explained with motivation as follows. The electron beam of Kinoshita et al. has the same axis as the x-ray beam. The laser beam axis of Tomie is parallel to an x-ray beam axis, wherein both axes are in a common vertical plane. If the modification of Kinoshita et al. with Tomie is obvious, then the laser beam axis would be parallel to an electron beam axis,

wherein both axes are in a common vertical plane. The above modification would have been obvious, since one would be motivated to make such a modification to make an apparatus more compact (Fig. 2) as implied from Tomie. Furthermore, rearranging parts of an invention only involves routine skill in the art.

16. Regarding claim 11, Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose laser and electron beam axes in a common horizontal plane.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with laser and electron beam axes in a common horizontal plane, since rearranging parts of an invention only involves routine skill in the art. One would be motivated to make such a modification to keep floor space clear for more leg room under the table (Fig. 24) as implied from Nagai et al.

17. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. in view of Hirose, Aoki et al., Nagai et al., and Tomie as applied to claim 12 above, and further in view of Tamura et al.

Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose a laser below an enlarging device, a power supply below the laser, and an evacuating unit below the laser.

Tamura et al. teaches a laser (Title, and Fig. 1, #1) below an enlarging device (Fig. 1, #18). Hirose further teaches a power supply (Fig. 1, #22). Nagai et al. further teaches an evacuating unit (Fig. 16, pumps).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with the arrangement of Tamura et al., since rearranging parts of an invention involves only routine skill in the art. One would be motivated to make such a modification to keep the device compact (Fig. 1) as implied from Tamura et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further incorporate the apparatus of Kinoshita et al. as modified above with the power supply of Hirose, since one would be motivated to make such a modification to keep the apparatus running for an indefinite amount of time.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further incorporate the apparatus of Kinoshita et al. as modified above with evacuating unit of Nagai et al., since one would be motivated to make such a modification to reduce x-ray loss in air (col. 2, lines 18-19) as implied from Nagai et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with a power supply and evacuating unit below a laser, since rearranging parts of an invention only involves routine skill in the art. One would be motivated to make such a modification to allow for easier access if one of those components breaks down, while staying away from other sensitive components.

18. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. in view of Hirose, Aoki et al., and Nagai et al. as applied to claim 14 above, and further in view of Tamura et al.

Kinoshita et al. as modified above suggests an apparatus as recited above.

However, Kinoshita et al. does not disclose an x-ray generator below an enlarging device.

Tamura et al. teaches an x-ray generator (Title, and Fig. 1, #1 and 5) below an enlarging device (Fig. 1, #18).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Kinoshita et al. as modified above with the arrangement of Tamura et al., since rearranging parts of an invention involves only routine skill in the art. One would be motivated to make such a modification to keep the device compact (Fig. 1) as implied from Tamura et al.

Conclusion

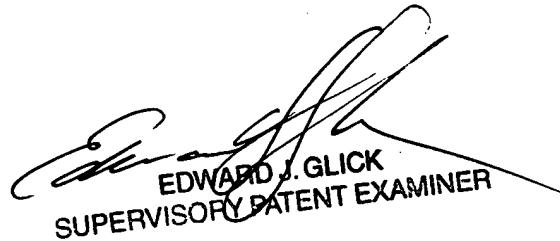
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER